



Energy Management – for the Most Efficient Use of Energy

The Energy Management System (EMS) is a centralized control system for the safe and efficient operation for all hybrid and electric powered vessels. It enables the optimal use of all energy resources, taking into account the different characteristics of all power sources and the main consumers. Furthermore, it provides forecasts such as range, maximum cruising speed or laytime for the necessary charging operations.

The EMS is a modular, stand-alone system and offers flexibility in terms of interfaces, functions and user interface. This makes it possible to control propulsion and energy systems from all manufacturers. Even the most complex functions can be implemented without having to adapt the standardized control of the individual energy systems.

It can also be fully integrated into our NORISTAR 4 remote drive control system to realize a central drive and energy management

system. In addition, the EMS can be seamlessly integrated with our NORIMOS 4 alarm monitoring and control system to provide ship engineers with extensive control capabilities from a central location.

Your benefits at a glance

- All control functions in one system
- Integration of all common brands of energy sources and consumers
- Interface to external AMS and RCS or fully integrated to NORIS Systems
- Stabilisation of energy supply mode
- Wear reduction for generators and batteries
- Increase operation reliability and safety mode

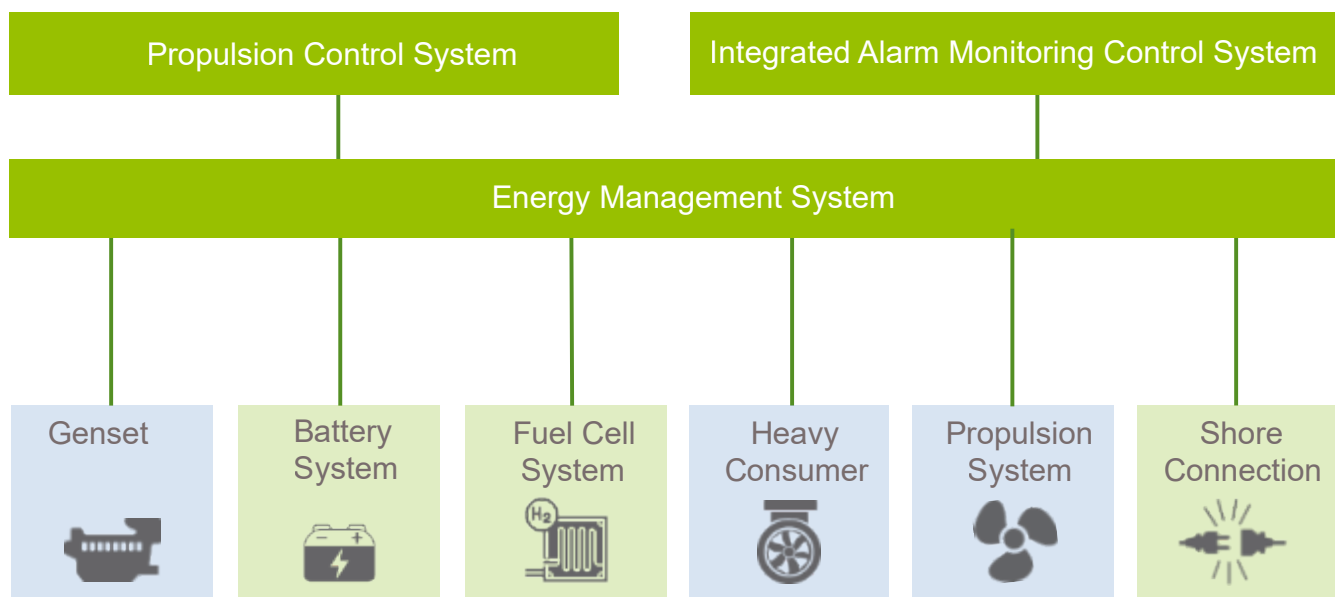


Fig. 1: Integration of all energy consumer and sources

Integration of all energy sources and consumer (see Fig. 1 above)

- Propulsion Control System
- Integrated Alarm and Monitoring System
- Energy Management System
- Power Management System (PMC) for controlling the energy distribution (generator/consumer)



Important functions

- Silent / noise reduction
- Standby / reserve mode
- Peak shaving
- Charge / discharge management
- Ripple reduction
- Increase efficiency by reducing energy consumption.
- Reduction of operating and maintenance costs
- Automatic selection of the optimal combination of energy sources
- Concentration of ships command on nautical tasks through reliable energy supply on board

Bridge Display for Captain

- Display of the most important data for assessing the energy balance
- Real time monitoring and recording of the Energy consumption
- Targeted use of the available energy by predicting the power demand based on the recorded data
- Intervention options for rapidly changing operating conditions
- Selection of hybrid operation, diesel operation and fully electric operation modes

